

## Management information systems

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**Abstract**— In the age of digital operation and widespread use of computer applications, information technology has become an integral part of the daily lives of individuals, companies and organizations as well. Information technologies play an important role for companies to communicate with their customers, improve the efficiency of their internal operations, and develop new products and services. Therefore, companies and institutions have replaced information technology technologies with traditional means, for the purpose of saving time and effort and completing work efficiently and with high quality. For this purpose, various companies and organizations need to hire managers who understand business processes and can identify their requirements, follow technological developments and understand their optimal use. The information systems management specialization integrates information technologies and management systems, where information systems use hardware and software as tools to solve business and organizational problems. In a clearer sense, information systems combine business principles such as accounting and management, with the study of computing and the use of computer technologies.

**Keywords**— Management – Basics - Introduction

### I. INTRODUCTION

Management Information Systems, otherwise known as MIS, are computerized systems designed to serve managers in the administrative organization, and they combine information technology, computer science, and management, and their goal is to build technological computer systems to help various institutions carry out their work, and perform many functions, Including: office

assistance, carrying out accounting tasks, organizing meetings and other matters that help institutions in the decision-making process.

## II. THE IMPORTANCE OF MANAGEMENT INFORMATION SYSTEMS

### Make business decisions

The main purpose of MIS is to make managers' decision making more efficient and productive. By grouping information from a range of sources into a single database and presenting the information in a logical format, MIS can provide managers with everything they need to make informed decisions and perform in-depth analysis of operational issues.

### Business information gathering

MIS can be developed to collect almost any type of information required by information managers. They can view financial data such as daily revenue and expenses at a glance and assign them to specific departments or groups. Performance indicators such as the timing of projects or the quality of products can help managers identify areas of needed improvement. Employees can manage work shift schedules, incoming deliveries, and outbound shipments from any MIS-connected location.

### Facilitate collaboration and communication

MIS can facilitate collaboration and communication as well. Employees can edit and share documents and communicate relevant information about expected developments and warnings across the organization.

### Compilation of business reports

One of the most valuable features of MIS is its ability to pull internal and external data from a variety of sources and present it in an easy-to-analyze format. Internal reports present information in a way that managers can understand, by including all relevant data and grouping the data in a logical way. For example, a report that a company manager sees for a restaurant chain might show revenue, expenses, hours, and the size of each outlet, allowing him to see which store makes the most money per floor employee and which stores have higher expenses compared to revenue and volume as an indicator of waste or theft.

### Generate government reports

Nonprofits can use MIS to automatically generate reports required by the government. This allows staff and volunteers to focus their time on more productive activities and can reduce errors and costs associated with government re-reporting.

## III. TYPES OF MANAGEMENT INFORMATION SYSTEMS

### Process Control

This system monitors the physical or industrial processes of businesses such as automobile assembly, petroleum operations, or metal fabrication. The process control system continuously collects data and then prepares a report on the system's performance. It is one of the most important types of MIS in any manufacturing company.

The report helps the manager evaluate the performance of the process and talk about the occurrence of a particular event over time. Other than that, it also tells us how often the production system differs from the cyclical production process. This type of information is useful in evaluating the efficiency of the production system and also helps in keeping the safety of workers and machines in check.

### **Management Reporting System**

This system is designed to produce reports on the operations and finances of all levels of management in the company. The management reporting system helps the company manager to compare the company's performance with last year's performance and expected performance.

In this way, the manager can evaluate his performance and work to improve the company's performance. This report is used by top management to compare the financial output and efficiency of operations with the company's set objectives.

### **Inventory control**

The company's inventory includes spoilage, sales, theft, and inventory on hand. The inventory control system keeps track of all these things and updates the management about them.

In this way, management determines when individual items are reduced and when they are required to be restocked in both the company's warehouse and retail stores. The inventory system keeps track of the movement of inventory

in the warehouse, it is one of the most important types of MIS in any company dealing with the storage of goods. Stored goods and products are cash in the literal sense of the word which is why they need MIS.

### **Human Resource Management System**

This information management system allows management to control the flow of information throughout the organization. Electronic devices used by managers to communicate with managers of other departments or their employees or even by employees to communicate with each other, is part of an information system.

Media devices include mobile phones, landlines, multimedia, Internet, e-mail, voice mail, video conferencing, and file sharing. The human resource management system keeps track of employees and their hiring. It also performs the day-to-day management of the employees.

This system keeps track of financial items such as payroll, benefits, and retirement that are also part of the accounting and financial system. It makes communication possible between employees, HR and management by providing legal compliance notices, mandatory training events, and HR policies. It does all the work like tracking work attendance, adjusting employee time, tracking available and used vacations and allowing employees to take sick or vacation leave without physically involving the manager.

In addition, this type of MIS also takes care of the employment aspect by collecting and evaluating resumes as well as identifying and aggregating qualified potential prospects.

### **Accounting and Finance**

The accounting and finance system keeps track of a company's investments and assets. Data collected from these reports is aggregated to prepare the financial reports required by law to handle functions such as payroll, local tax, state and pension funds. This system generates reports required for regular financial audits and also generates annual reports for senior management.

The accounting and finance system also helps in the daily carry-over of normal transactions such as sales income, bank deposits, remittances and returns. All monthly and annual data such as profit and loss statements and balance sheets are produced from this system. This data is important for knowing the company's performance for the middle and senior manager and for tracking and comparing the current financial position with the company's past financial position and pre-set goals for future growth.

### **Decision Support System**

This support system is designed in such a way that it helps the manager to make a decision when a situation arises.

It collects data from both external and internal sources. Population trends, interest rates, and the cost of building

new homes are the few examples of external sources, while factories, sales, inventory, or financial data are examples of the internal source of information. For example, a manager takes the help of a decision support system to consider external and internal factors while setting annual sales quotas.

### **Expert System**

The expert system is designed in such a way that it takes and stores the knowledge of a human expert on a particular topic and uses that knowledge to help people with less experience make decisions.

AI is an important part of an expert system. The expert system senses your actions based on actions you have taken in the past in similar situations and makes a decision based on those logical assumptions.

### **Executive Information System**

The Executive Information System is designed in such a way that it helps the CEO to manage the executives. This system provides information in the form of tables and graphs, which makes it easier for the manager to conduct analysis and take important decisions.

### **Transaction Processing System**

The business of a transaction processing system is to collect and process data produced during the routine activities of an organization. Activities such as orders, payments, deposits or reservations.

### **School Information Management System**

The School Information System (SIMS) enables the school to manage the daily activities of the school in an efficient manner. Many schools are adopting this technique to shape the minds of youngsters in addition to tackling all the activities that take place behind the scenes in the school.

The School Information System has reduced the work of updating and managing student attendance records. Now, the School Information System performs this activity in a seamless manner and saves teachers time for other productive activities.

### **Local Databases**

Local databases are also an example of an MIS. Local databases provide in-depth information about the communities that live across the country. These databases take information from open business listings, public data, integrated local service delivery, and social survey inputs.

### **Decision Making**

Management Information System (MIS) plays an important role in the decision-making process of any organisation. In an organization, the decision is made on the basis of relevant information that can be retrieved from the management information system.

### **Coordination between the Departments**

The management information system meets the multiple needs of the organization across the different functional departments.

### **Troubleshooting**

As we know that MIS provides relevant information about every aspect of the activities. Hence, if management makes any mistake and then MIS, the information will help in finding a solution to this problem.

### **Business performance comparison**

MIS stores all previous data and information in its own database. This is why MIS is very useful for comparing the performance of a business organization.

### **Strategies for an organization**

Today every business is run in a competitive market. The Management Information System (MIS) supports the organization to develop appropriate business strategies for approval in a competitive environment.

## **IV. WORK AREAS OF MANAGEMENT INFORMATION SYSTEMS**

### **Computer Systems Design**

Tech-savvy people with MIS experience may become web developers, programmers, systems engineers, project managers, or technical consultants.

Of course, the above jobs are not only available in technology-focused companies. There is almost no large organization that does not need a team of computer experts to help keep things running smoothly.

### **Financial and Insurance Fields**

Financial information is data, and in its raw form, it can leave heads spinning. Financial institutions deal with millions of dirhams of their clients' money, all of which are distributed among dozens of types of savings accounts, pension funds, stocks, bonds and other forms of investments. Without a reliable way to manage all that data, clutter can quickly take over.

People who can find new ways to organize data and create reports are indispensable in finance. In fact, according to the Bureau of Labor Statistics, 12 percent of computer and information systems managers work in the financial and insurance industries.

### **Government Field**

Government organizations must handle progress reports, financial information, and other data necessary to make decisions and move projects forward. Powerful MIS applications can deliver information in a timely and insightful manner.

The public sector has a particularly strong need for effective information systems. About seven percent of computer and information systems managers work in government.

### **Big Companies**

Company managers and executives need data reports that help them evaluate performance and come up with new ideas for projects. As in other fields, MIS experts working for large companies will keep hardware and software up to date, help develop applications, and may perform other tasks such as creating web pages.

Smaller operations may also use people who know the ins and outs of the MIS. A small insurance company, for example, might need someone to design a program that organizes statistics and helps the company figure out how to adjust its rates.

Information systems management is a broad field of work that does not provide any shortage of employment opportunities. In fact, the expected growth for this career field is well above the average across all occupations. It really is one of the jobs of the future.

### **Specialization in Management Information Systems**

The specialty of management information systems known as MIS is a scientific discipline as it integrates between information technology and management sciences. Creating efficiency and organization in work to meet the needs of institutions. This field and its employees work jointly, with one goal being to achieve the optimal investment for individuals, organizations, resources, as well as business operations. It is also keen to provide assistance to managers in making sound and successful strategic decisions based on

the credibility and reliability of the information that the system saves and ensuring easy return to it at any time when her need.

## V. ADVANTAGES AND DISADVANTAGES OF SPECIALIZING IN MANAGEMENT INFORMATION SYSTEMS

### Advantages of specializing in management information systems

- Helps reduce risk in decision making
- It processes data and extracts information from it
- Provides information on various aspects of business
- Helps executives quickly tap into information related to functional areas
- The database assists in research. The stored data is used as secondary data
- Provides sound information regarding the financial health of a business organization
- Assists in preparing company report
- It helps the HRD manager to know the human resource requirements, their wages and salaries, performance appraisal, training, promotion, absenteeism and employee turnover, which is helpful in formulating sound HRD policies
- Production-related data helps the production manager decide on capacity utilization, number of rejections per batch, frequency of failures, order shipment status, and product processed

- Provides information on the stock situation, and ensures that the chances of out of stock are minimized
- Provides information regarding product, price, promotion, retail, demand, sale etc. to the Marketing Manager immediately and ensures smooth functioning of this department

Nowadays, every commercial organization attaches due importance to this department. She is credited with the growth and development of many business organizations. If the organization downplays the importance of MIS, it may have larger changes to generate negative profit.

### Disadvantages of majoring in management information systems

- MIS considers mainly quantitative factors, thus ignoring non-quantitative factors such as morale and attitudes of organization members which have an important impact on the decision-making process of executives.
- MIS is less useful in unprogrammed decision making. Such types of decisions are not of the routine type and thus require information that may not be available in the current MIS to line managers. The effectiveness of MIS decreases due to frequent changes in top management, organizational structure and operational team.
- MIS is not a substitute for effective management. This means that it cannot replace managerial

judgment in making decisions in various functional areas. It is just an important tool in the hands of executives for decision making and problem solving.

- MIS may not have the flexibility to quickly update itself with the changing needs of time, especially in a rapidly changing and complex environment.
- The effectiveness of MIS is reduced in the organization, as there is a culture of storing information and not sharing it with others.
- MIS cannot provide packages of information that are tailored and appropriate for the purpose of each type of decision made by executives.

## VI. CONCLUSION

The management information systems specialization is considered one of the most distinguished specializations. This is due to its interest in the process of facilitating the achievement and analysis of strategic and operational activities, and it is possible to consider this specialization from an academic point of view to indicate how to study enabling individuals to evaluate, design, implement and manage their use, in addition to generating and developing information, and benefiting from this by adding elements of efficiency and effectiveness to the process Production and that is within the framework of systems called decision support systems, expert systems, and executive information systems.

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